CENTERS FOR MEDICARE & MEDICAID SERVICES

OFFICE OF INFORMATION SERVICES

CIO Planning, Management, and Support Group

IT INVESTMENT MANAGEMENT PROCESS GUIDE

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INTRODUCTION

The Centers for Medicare & Medicaid Services (CMS) is a large organization with enormous responsibility, including:

- providing health insurance coverage to over 70 million aged, disabled, and poor Medicare and Medicaid beneficiaries;

- paying over $300 billion each year in program payments to hundreds of thousands of providers and health plans, as well as States;

- overseeing the State Children's Health Insurance Program that serves over 3 million low-income children;

- managing a network of some 50 private contractors that process and pay over 900 million Medicare claims yearly, in addition to handling provider and beneficiary inquiries;

- contracting with nearly 250 Medicare+Choice organizations, and more than 50 Peer Review Organizations;

- serving as the frontline contact for policy advice, as well as eligibility, payment and coverage information for beneficiaries (handling over 39 million beneficiary inquiries annually), the health care industry, Congress, and the Executive Branch; and

- providing leadership for the national implementation of the administrative simplification provisions in the Health Insurance Portability and Accountability Act (HIPAA), including making our own systems HIPAA compliant.

Information technology (IT) is a key enabler for supporting these major CMS business responsibilities. The increasingly rapid pace of change in user requirements and technology evolution requires that CMS manage its investments in IT wisely. Industry analyses highlight the high rate of failed IT investments, with the most commonly cited causes being poor planning and ineffective management processes. Congress also recognized the need for more effective IT investment management processes in the Clinger-Cohen Act of 1996.

The Office of Information Services (OIS), headed by CMS's Chief Information Officer (CIO), has developed an IT investment management process that brings together best practices in the fields of project management, financial management and systems development to provide a structured process for the selection, development, and implementation of IT investments. The Guide provides an overview to CMS's IT Investment Management Process. The process, and this Guide, will continue to evolve as we apply our own lessons learned to refine the process. Subsequent versions of this document will be posted on the CMSnet.

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OVERVIEW

CMS's IT Investment Management Process reflects our acknowledgement and response to two major sets of drivers - legislation requiring Federal agencies to be more accountable and more effective in their management of IT investments to support business objectives, and sound business management principles to ensure that critical resources are maximized in support of agency business objectives.

Legislative Drivers

Information technology (IT) is an increasingly important vehicle for Federal agencies to carry out their missions - it fosters efficiency, streamlines processes, and encourages sharing of information for public benefit. Congress has recognized, through legislation passed over the past 10 years, the importance of improved management practices in the way Federal agencies invest and manage IT, in order to get the most value for the dollars spent.

In 1993, Congress passed the Government Performance and Results Act (GPRA) designed to make Federal agencies more accountable for results that are meaningful to the tax-paying public. It requires that each Agency prepare and submit to Congress a Strategic Plan that defines the Agency's mission and sets long-term goals, an Annual Performance Plan with supporting short-term goals, and an Annual Performance Report with data and explanations about progress toward achieving the goals. GPRA focuses on setting goals that support the Agency mission and establishing performance measures to track results. However, it does not speak directly to IT-related activities. Two later pieces of legislation do add specific requirements governing IT activities.

The Paperwork Reduction Act of 1995 requires that each Agency develop and maintain a strategic Information Resources Management Plan that describes how IT activities help accomplish the Agency mission. It also requires agencies to assume responsibility not only for maximizing the value, but also for assessing and managing the risks of major information system initiatives.

In 1996, the Information Technology Management and Reform Act (or the Clinger-Cohen Act) was passed. Clinger-Cohen established the position of the Chief Information Officer in each Federal agency. In addition, Clinger-Cohen required Federal agencies to strengthen their IT management processes in order to maximize the mission-benefit derived from IT investments; and ultimately to create improved mission performance and service to the public. A key goal of the Clinger-Cohen Act is for Federal agencies to have a process in place to ensure that IT projects are implemented at acceptable costs, within reasonable time frames, and are contributing to tangible, observable improvements in mission performance. This process must be institutionalized throughout the organization and used for all IT-related decisions. Also, agencies must adopt an enterprise-wide architecture and future investments must conform to the established architecture. The Government Information Security Reform Act (GISRA) of 2000 places additional responsibilities on government CIOs to strengthen their systems security efforts and to integrate systems security into their IT investment management processes.

Business Driver: Manage IT Investments Wisely

Industry analyses highlight the high rate for failed IT projects. The most commonly cited causes for failed projects are poor planning and ineffective management processes. To counter this, CMS strives to manage its IT investments wisely. The increasingly rapid pace of change in CMS's programs and user requirements, the pace of technology evolution, and CMS's obligation to be fiscally responsible mandate that CMS develop and implement sound management practices for its IT investments. CMS's management process attempts to bring together best practices from multiple disciplines, including,

- project management and financial management (including return-on-investment and risk analyses, earned value management),
- architecture and standards compliance,
- acquisition management (performance-based contracting), and
- systems development (including requirements management, configuration management, quality assurance, independent testing, and independent verification and validation).

By integrating these elements, we provide a structured methodology for the selection, development, and implementation of CMS's IT investments. CMS's goal is to manage IT investments wisely, to maximize the program benefit from these investments, and to improve mission performance and service to our beneficiaries.

CMS's IT Investment Management Process

In 1997, the Office of Information Services began developing an IT Investment Management Process to meet the specific obligations of the Clinger-Cohen Act, OMB guidance, and CMS's own needs for more effective management processes. The IT Investment Management Process has continued to evolve as the Agency has developed the following critical building blocks of an integrated process:

- establishing an enterprise-wide architecture,
- developing security standards and policies,
- streamlining acquisition processes and implementing performance-based contracting,
- developing earned value management reporting systems to monitor performance,
- establishing requirements and configuration management processes,
- establishing a viable independent testing process, and
- developing a standard systems development life cycle.

CMS's current investment management process will continue to improve as we refine these individual building blocks, better integrate the processes and practices, and apply lessons learned to refine the overall process. However, we believe the current process provides a solid

framework for the Agency to be able to manage its IT investments and yield improved program benefits.

The investment management process is built on the conceptual framework laid out in GAO's February 1997 *Assessing Risks and Returns: A Guide for Evaluating Federal Agencies' IT Investment Decision-making.*
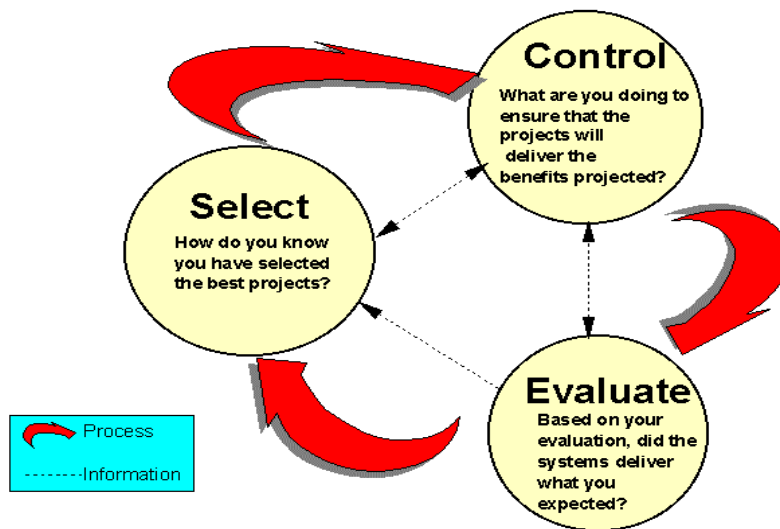
Figure above courtesy of the GAO at: www.gao.gov/policy/itguide/overview.htm

Each phase presents specific challenges and issues that need to be dealt with. To address the Select Phase CMS established the Business Case Analysis Phase. To address the Control Phase we developed the IT Investment Management Phase. Lastly, to address the Evaluate Phase we are in the process of developing a formal process to gather lessons learned to improve the process.

The objective of the Business Case Analysis Phase is to provide sufficient understanding about the estimated scope, cost, risks, and schedule for development and implementation of the proposed IT investment to be able to make an informed investment decision. Specific analyses that are to be completed during this phase include the following: current state; business, user, and system requirements; a proposed alternative analysis; gap analysis between current state and proposed alternative; return-on-investment; technical strategy; acquisition strategy; and risks at the project level. The business case analysis (BCA) serves as the basis for CMS's IT Investment Review Board (ITIRB) to make an investment decision on the project.

The objective of the IT Investment Management Phase is to ensure that the project, once it is approved by CMS's ITIRB, is managed and implemented in a structured manner, using sound management practices and ensuring involvement by business stakeholders and technical experts throughout the systems development lifecycle. This ensures that appropriate management action will be taken to address any performance issues relative to scope, budget, or schedule that jeopardize a project's success. Therefore, this phase also includes continuous monitoring and evaluation of a project's performance throughout its lifecycle.

There are a number of IT projects that are implement entirely with in-house resources. These in-house projects do not require review and approval by CMS's IT Investment Review Board because they do not require direct funding. However, these projects have the potential to impact other IT initiatives and systems and may require the support of CMS IT staff and resources. Therefore, project owners of in-house projects are subject to the same management review and control principles that govern IT investments outlined in this document. Staff from the Planning, Management, and Support Group is available to discuss these projects with you.

CMS's IT Investment Management Structure

The Financial Management Investment Board (FMIB), which is comprised of senior level managers (generally Deputy Center and Office Directors), is responsible for developing the Agency's fiscal Operating Plan each year based on the overall budget allocated by Congress. Currently, the FMIB alone plays the role of the Agency's ITIRB. Through their course of business, the FMIB determines which IT investments to fund based on the Agency's priorities.

CMS's CIO, who is also the Director of OIS, and OIS staff have the principal responsibility for supporting the ITIRB decision-making and investment management processes. The investment management process represents the integration of multiple management disciplines, whose responsibilities are delegated to different components within OIS. These disciplines and the responsible groups include the following:

- IT architecture development and compliance: Planning, Management, and Support Group, supported by the CIO's Technical Advisory Board (CTAB);

- Systems development life-cycle processes (including requirements management, configuration management, quality assurance, independent testing, etc.): Planning, Management, and Support Group;

- Security standards development and compliance: Security and Standards Group;

- Capacity planning and infrastructure/technical support: Technology Management Group;

- Data and database administration: Enterprise Databases Group; and

- Overall project management planning and coordination: Planning, Management, and Support Group.

The CIO Planning, Management, and Support Group (PMSG) serves as the principal contact and entry point for all new and proposed IT projects; provides direct support to the FMIB in its

ITIRB decision-making role; and is responsible for coordinating and integrating the overall investment management process for all project owners.

Last, but not least, the project owner for each IT investment project is responsible for the day-to-day management of the investment and for compliance with the requirements of the Agency's IT investment management process. While the project owner receives ongoing support from OIS in helping to effectively manage the investment, the project owner plays a critical role in managing and directing the project, managing risks, and monitoring the project and contractor performance.

Summary

CMS's IT Investment Management Process provides an integrated and structured method for the selection, development, and implementation of IT investments that advance the strategic and business goals of the Agency. The process is designed to bring together best management practices from multiple disciplines to manage CMS's IT investments wisely, to maximize the program benefit from these investments, and to improve mission performance and service to beneficiaries and recipients.

The following chapters and attachment provides the reader with an in-depth description of the IT Investment Management Process and the requirements that project owners must fulfill, along with the support available to the project owner from OIS. The Guide is designed to promote a common understanding of the roles and responsibilities of the project owners and the process management support areas within OIS and explain how they all work together to successfully manage a project.

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IT INVESTMENT MANAGEMENT PROCESS

The Budget Process

At any given point in time, CMS is managing three consecutive fiscal years from an investment standpoint:

- execution of the Operating Plan for the current fiscal year (FY),
- development of the Operating Plan for the next fiscal year (FY+1), and
- formulation of the Budget Justification/Request for two fiscal years out (FY+2).

OIS and the Office of Financial Management use "call letters" as the vehicle for requesting information on new IT projects and updating information on existing investments. In an attempt to simplify this multi-year picture, information is often requested for several years at a time and for as many as five years out for planning purposes. Attachment A, IT Budget Formulation, explains the relationship between the budget call letters and the IT Investment Management Process.

FY	FY+1	FY+2	FY+3	FY+4
This fiscal year	Next fiscal year	Two fiscal years out	Three fiscal years out	Four fiscal years out

Types of IT Investments

IT investments are assigned a classification level based on the nature and sensitivity of the project. This classification permits CMS to focus the appropriate level of management oversight and scrutiny on the project. These four classification levels are as follows:

- Level A   Ongoing, baseline projects, usually related to the infrastructure, that support core business functions, e.g., hardware/software maintenance, data communications and network operations. (These are referred to as "door-openers" since they are required to open the doors every morning.)
- Level B   Projects that are single-year hardware or software purchases; ongoing systems maintenance of existing systems; and development or enhancement projects under $100,000.
- Level C   Multi-year software development or enhancements over $100,000; complex or large purchases; and large hardware or network integration activities that can be broken down into phases.
- Level D   Projects that represent major investments exceeding $2.5M in 1 year or $10M over 5 years is of high visibility/sensitivity to key stakeholders, or drive forward a mission critical business function.

New IT Projects (Levels B, C, D)

Document the Business Need

Need Identification

The first step in developing any project (IT or non-IT) is to identify and define the specific business need that is the driving force behind the project. This business need can result from legislation, changes in business strategy (including advances in technology) to improve service or achieve business efficiencies, or problems identified in current business operations. Every project that CMS undertakes must align with the Agency's critical mission, support a major business need and be prioritized by the sponsoring business component according to the criticality of the business need relative to other needs.

The question that must then be addressed is the role IT will play in supporting the business need. An IT project refers to a project that uses, collects, manipulates, transfers, stores, or automates information. To determine if a project is considered an IT project, there are four questions that project owners must answer:

1. Does the project require the collection or receipt of data, or the storage of data in a database?

2. Does the project generate data that is used by another system or entity, or that is made available to people through the Internet?

3. Does any part of the project involve automating a part of the process or improving a part of the process by moving to newer technology?

4. Does the project take raw data and turn it into information for analysis or decision-making?

If the answer is yes to any of these questions, then the project is considered an IT project and is subject to all of the policies, processes, and procedures dictated in the IT Investment Management Process.

Once the general scope of the project is established and it is evident that IT resources will be used, the project is subject to the IT investment management process, and a project owner should be assigned by the business component (center/office/consortium). The project owner is the individual who has the day-to-day responsibility for the management and success of the proposed IT project. While the project owner may be at any level in the organizational structure, he/she should have experience as a project manager commensurate with the complexity, sensitivity, and size of the project (or be assigned to work with an individual within the organization who has the appropriate project management experience). The project owner is the lead contact for the project relative to the IT Investment Management Process and is responsible for satisfying all of the required documentation throughout the life of the project. The project owner also serves as the individual responsible for communicating regularly with his/her management on the needs and progress of the project.

Budget Request Call Letter

A formal call memorandum for the submission of all Agency budget requirements is sent out by the CIO and the Chief Financial Officer on an annual basis. Replies to this call for IT initiatives should include only new projects, not ongoing. This is done around the beginning of the calendar year when the Agency begins developing the President's budget request for FY+2. For these new IT projects, the sponsoring component must justify the criticality of the business need to be addressed by that IT project. Specifically, since every year the competition among projects for available funding is keen, the sponsoring component must justify to the FMIB (playing their ITIRB role) that the business need driving the IT project is important enough to warrant funding the business case analysis for that project.[1]

At this time components may also submit IT requests for new initiatives for FY+1 which were not previously included in the President's Budget for that year. These new initiatives will be included for consideration in the Agency's Operating Plan for the next fiscal year.

IT Fact Sheet Development

The project must be entered into the CMS IT Investment Tracking Database as is assigned a candidate FMIB tracking number. The Database is an interactive, web-based application for the project owner to submit and update information concerning his/her approved IT project.[2] The Database is housed on the CMSnet and different levels of access are given to users based on their "need to know."

The IT Fact Sheet requests basic information about the business need for the project, the anticipated benefits, and the project's spending plan. The Division of Investment Analysis and Budget (DIAB) within PMSG is available to provide support to the project owner in developing the IT Fact Sheet. In general, the IT Fact Sheet covers the following information:

- the business need that the project will address;
- how the project supports mission critical initiatives, and the impact of funding or not funding the project;
- a description of the scope and nature of the project;
- the type of investment (baseline/major/non-major, new/continuation, etc.);

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[1] NOTE: Information about ongoing IT projects is requested from project owners and captured in the CMS IT Investment Tracking Database--discussed below. There are also opportunities throughout the fiscal year to submit requests for new IT projects identified after the formal call. However, after the Operating Plan has been finalized, funding opportunities are greatly limited.

[2] NOTE: To obtain access to the IT Investment Tracking Database, the project owner must fill out a form entitled "Application for Access to HCFA Computer Systems." This form can be obtained from the project owner's RACF Administrator and should be submitted back to the same person. The IT Investment Tracking Database should be listed in section 3a of the form. After filling out this form, the project owner needs to contact DIAB to have database access rights established.

- the technical strategy considered to implement the project, including underlying technical assumptions, systems impact considerations, and architecture integration strategies;

- the projected cost of the investment for the current fiscal year and the out years;

- major timeline and milestones;

- a potential funding source, period of performance, and the potential contract vehicle;

- cost-benefit analysis information;

- an explanation of how the progress of the investment, while being implemented, will be measured; and

- the critical success factors to be tracked and assessment of risk that can jeopardize the success of the project.

Since the IT Fact Sheet is prepared at an early stage of the project, the first two items (business need and alignment with CMS's strategic plan objectives) are the most critical for the FMIB to approve the project.

Tentative Approval by FMIB

The FMIB reviews all of the competing requests for funding (IT and non-IT), and in June the Agency submits the President's budget request for FY+2. The FMIB then reviews all requests for FY+1 during the July – September timeframe and develops the an Agency Operating Plan for the coming fiscal year. Normally the draft plan is prepared using the congressional appropriation committee "marks" and prior to the final appropriation for that fiscal year. Once the final appropriation action occurs, CMS may receive more or less money than anticipated, and it may be necessary to change the decisions in the draft Operating Plan before it is released as final.

Once the IT project has been approved for funding of the BCA, the project is assigned a permanent FMIB tracking number in the IT Investment Tracking Database that retained for the entire life of the project.

Business Case Analysis and IT Investment Management Phases

All new IT projects (Levels B, C, or D and in-house projects) must complete a business case analysis to support the FMIB investment funding decision. Given the different nature of Level B (small, single year) versus Level C and D projects (large, multi-year), the nature of the business case analysis differs. For new Level B projects, it is anticipated that the business case analysis already will have been completed at the time that funding is initially requested for the project. The process for new Level B projects should be discussed with your contact person in the DIAB. Given the size and complexity of Level C and D projects, it is recognized that the business case analysis normally will not have been complete at this stage, and that funding is being requested to secure the services of a contractor to assist in conducting the business case analysis. The discussion that follows outlines the process for new Level C and D projects.

A BCA also must be prepared on in-house projects (those projects implemented entirely with in-house staff). Even though no funding is being requested, in-house projects are subject to the same management review and control principles that govern funded IT investments. The level of documentation may be scaled back accordingly.

Level C and D Projects:

Level C and D projects have greater reporting requirements because they take longer to implement, are more costly, and therefore, pose a greater risk to CMS. These projects fall into two categories:

- System or software development activities that involve the integration of the requirements of multiple stakeholders or may be technologically complex to implement, and

- Projects with enterprise-wide impact, such as the desktop replacement initiative, that is expensive and carries additional risk.

To mitigate the risk, CMS requires greater analysis prior to giving approval to the project as an investment. Therefore, a two-phase process for Level C and D projects has been created. The first phase is the Business Case Analysis Phase, which complies with the GAO Selection Phase, and the second phase is the IT Investment Management Phase, which complies the GAO Control Phase.

This two-phase approach is designed to mitigate risk and is the cornerstone to sound investment decision-making. Only a small amount of funding is invested in the project at first to conduct the business case analysis, delaying the more costly funding decisions until the cost, scope, schedule, and risks have been more clearly identified. The Business Case Analysis Phase provides CMS's ITIRB with the necessary information concerning scope, alternatives considered, estimated costs and return on investment, schedule, risks, acquisition strategy, and technical strategy in order for them to make an informed investment decision.

Following approval by CMS's ITIRB, the project moves into the IT Investment Management Phase, where the project is supported and managed, following sound management practices, including project and financial management, contract management, and the discipline of a systems development life-cycle process.

During both phases, the project owner is provided assistance from multiple components within OIS. During the IT Investment Management Phase, the project owner will be supported by an Integrated Project Team (IPT), comprised of both business and technical staff, to support project design, development, and implementation issues:

- Security standards development and compliance: Security and Standards Group

- Capacity planning and infrastructure/technical support: Technology Management Group

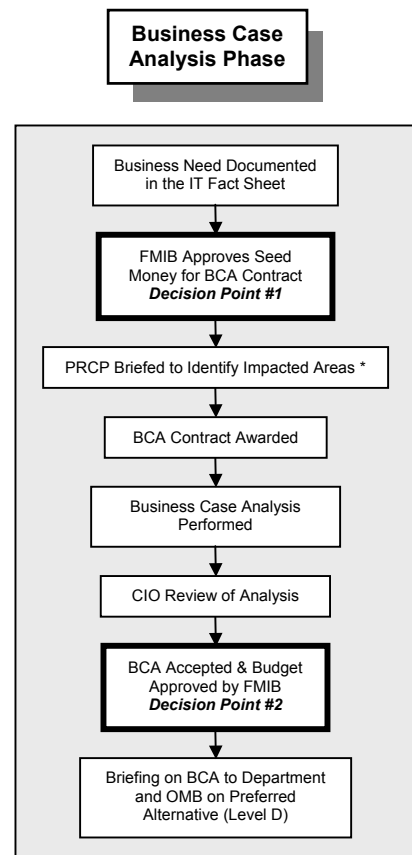- Data and database administration: Enterprise Databases Group

- Overall investment management planning and coordination and the systems development life-cycle processes: Planning, Management, and Support Group.

  - DIAB provides support on the IT Fact Sheet, IT budget and the IT Investment Tracking Database;

  - the Division of Investment Support provides guidance and advice on general project planning methodologies, IPTs, and project officer services for IT contracts;

  - the Division of Investment Tracking and Assessment provides tools for measuring contractor performance; and

  - the Division of Architecture and Strategic Planning provides support for IT architecture development and compliance.

Business Case Analysis Phase

The purpose of a business case analysis is to provide CMS with the necessary information to assess the benefits, the risks, and the impact of a project before committing to multiple years of funding. In the case of legislatively mandated projects, CMS may not have the choice of whether or not to implement a project, but has control over how the project is implemented. The BCA looks at not only why CMS invests in a project, but also how CMS plans to accomplish it.

Although all of the variables can not be known up front, there is critical information that can be documented early on to avoid costly mistakes or surprises later in the lifecycle. Preparing a BCA is an opportunity to ensure that the business owner(s) agree with the goal and the benefits of the project and the technical experts agree that the proposed technology complies with the target architecture and can be supported. The FMIB balances the available budget and CMS's priorities, and can make an informed decision about funding a multi-year project before larger amounts of money have been spent.

The picture to the right shows the progression of activities that occur in this phase. This phase can take a few months or many months depending upon the complexity of the project. PMSG has the primary responsibility to help the project owner understand requirements of the process and to facilitate the successful completion of them. But the ultimate responsibility for implementing the project within the guidelines of the process lies with the sponsoring component and the project owner.

Business Case Analysis Phase

Business Need Documented in the IT Fact Sheet

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FMIB Approves Seed Money for BCA Contract
Decision Point #1

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PRCP Briefed to Identify Impacted Areas *

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BCA Contract Awarded

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Business Case Analysis Performed

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CIO Review of Analysis

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BCA Accepted & Budget Approved by FMIB
Decision Point #2

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Briefing on BCA to Department and OMB on Preferred Alternative (Level D)

* May be done now or in the next phase

BCA Contract Support

Once the funding for the BCA has been approved by the FMIB, staff from DIAB contacts the project owner to discuss the acquisition strategy for acquiring the services of a contractor to support the analyses and documents required under the Business Case analysis Phase. PMSG has developed a BCA Guide and sample BCA statement of work that includes all of the required sections that must be present in the final document. In addition, OIS retains the services of contractor that is familiar with the CMS environment and the requirements of a good BCA. PMSG strongly encourages the use of this contractor since they provide expertise and objectivity in preparing the BCA. This contractor is not eligible to perform the actual systems development support work under the IT Investment Management Phase, promoting impartiality and quality in the preparation of the BCA.

For smaller projects, where the project owner prepares the BCA in-house, there is also available an Abbreviated BCA Guide. This has been developed to ease the burden on project owners when minimal funds are available for a project, but there is still a requirement to produce a document within CMS guidelines for a BCA.

Involvement of the Project Review and Coordination Panel

The BCA is prepared with input from all of the business owners, stakeholders, and technical experts that are impacted by the project or must contribute to the analysis. The project owner is encouraged to discuss his/her IT project with the Project Review and Coordination Panel (PRCP) to ensure that impacted business components and technical staff are aware of this project. Since the preparation of the BCA will generally require input from business components in identifying user and system requirements, and may involve input from technical staff in development of the alternatives analysis, the PRCP can also identify those components that should be involved during the BCA preparation/review.[3]

Preparation of the BCA

The major analyses that need to be completed as part of the BCA include:

- current state analysis (including identification of problem),
- user and system requirements analysis (the future state),
- gap analysis (between the current and the future state),
- alternatives analysis (including a high level cost/benefit and risk analysis of all of the viable alternatives),
- a selection of the preferred alternative,
- a high-level logical model of the preferred alternative,

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[3] The PRCP also plays a role during the establishment of the Integrated Project Team, during the IT Investment Management Phase, by helping the project owner identify all of the impacted business areas that need to participate in the IPT. This is discussed in the IT Investment Management Phase.

- a project plan, including a project management plan, a work breakdown structure, and a project schedule for BCA activities,

- a description of the acquisition strategy, and

- an executive summary that summarizes all of the findings or decisions based on the analysis performed (the executive summary should come at the beginning of the completed package, but can not be written until all of the analysis is finished.).

The BCA document should not exceed 50 pages, although attachments may be included for reference. The BCA document must be succinct in its discussions of these analyses so that it can be effectively used by the ITIRB for investment selection.

BCA Review

The final BCA is reviewed from three perspectives by three different groups:

1. Does the scope of the proposed investment address the key business, user, and system requirements identified by the business owners and stakeholders? Reviewed by the business owners and stakeholders.

2. Can the proposed high-level technical approach be supported from an architecture, technology and infrastructure perspective? Reviewed by the CTAB.

3. Have the appropriate investment analyses (alternatives, cost, return on investment, risk, and project sensitivity analyses; acquisition strategy) been completed and do they support the recommended alternative? Reviewed by PMSG.

The project owner should ensure that there is documentation that the business owners and stakeholders have accepted user and system requirements by providing a signature sheet or e-mails. PMSG reviews the BCA from an investment analysis perspective and forwards the BCA to the CTAB for technical and architectural review.

FMIB Review and Investment Decision

Once the BCA has been reviewed and accepted, the document is forwarded to the FMIB for consideration and an investment decision at an upcoming FMIB meeting. The FMIB representative of the sponsoring component of the project is expected to present the project to the FMIB using the executive summary of the document and other pertinent parts of the BCA.

Once the BCA is approved, the project becomes an "investment" and moves into the IT Investment Management Phase. As an investment, CMS has determined that the preferred alternative will provide the mission benefits at an acceptable life-cycle cost, and with acceptable risks. The decision to approve an investment also means that the FMIB expects the project owner to effectively manage the risks, schedule, and budget approved for the investment; to continue to monitor and report on investment performance; and to comply with the requirements under the IT Investment Management Phase.

Briefing to the Department and OMB (Annual OMB Exhibit 300)

For Level D projects (major investments), CMS is required to prepare and submit the proposed investment to the HHS ITIRB, and to submit a report to the Department in the form of OMB Exhibit 300, "Planning, Budgeting, and Acquisition of Capital Assets." This submission is required by OMB Circular No. A-11, the "Annual Preparation and Submission of Budget Estimates." Generally, the BCA prepared on all Level D projects for CMS's ITIRB will be submitted to the HHS ITIRB for their consideration. Once CMS decides to go forward with a major investment, the OMB Exhibit 300 is prepared and updated annually to report progress and variances from the initial submission. Though PMSG is responsible for preparing this document, significant input is expected from the project owner.

IT Investment Management Phase

The IT Investment Management Phase has been established to ensure that CMS effectively manages all Level C and D IT investments, following sound financial and project management, systems development, and performance monitoring practices. This phase integrates the many different partners required to develop and implement IT solutions successfully. The chart below shows the progression of activities that occur in this phase. The box on the left side reflects those activities normally considered as part of a systems development life cycle (design, development, and implementation), and are carried out by the project owner with support from the IPT. The box on the right side reflects the investment performance monitoring required to ensure effective management of the investment. These activities occur simultaneously throughout the life of a project, and apply to all Level C and D investments.
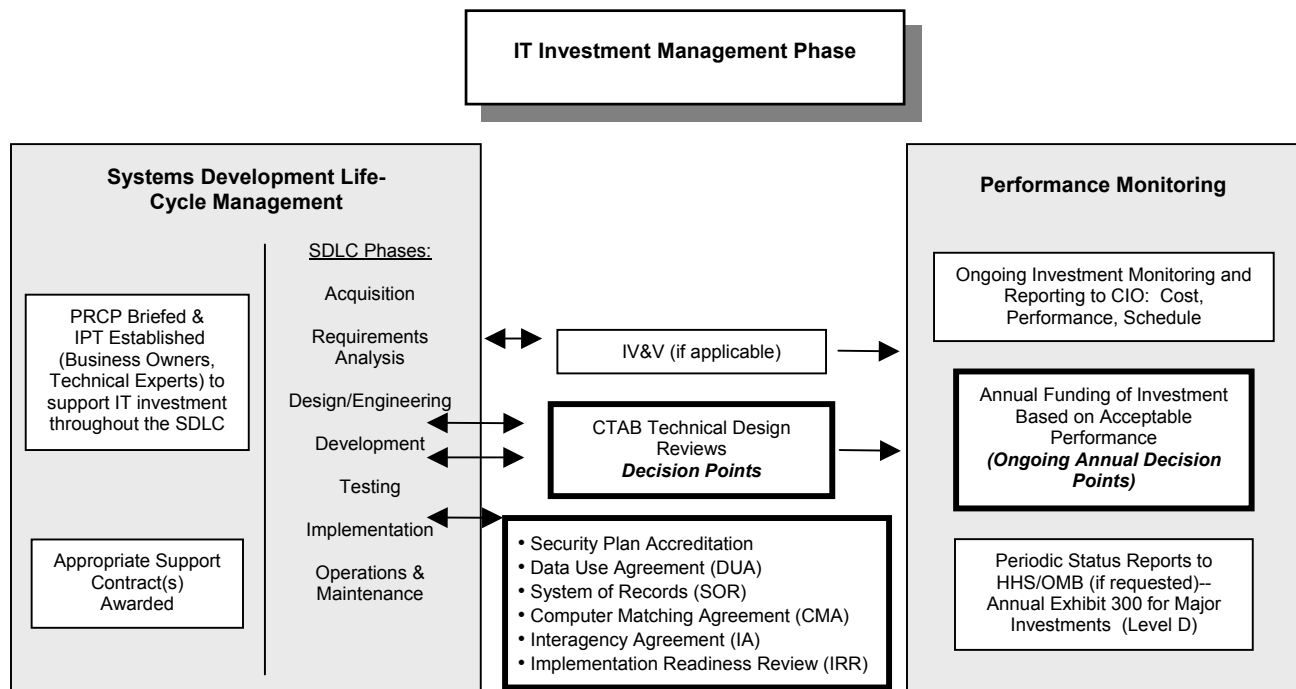
Systems Development Life-Cycle Management

Briefing of PRCP and Establishment of Integrated Project Team

After the FMIB has approved the project as an investment, the project owner is notified formally, and a briefing is scheduled with the PRCP for purposes of establishing an IPT to support the project. The PRCP determines which business and technical areas must be represented on an IPT to assist the project owner. The staff who will comprise the IPT are then identified by their organizations. Once an IPT is formed, the PRCP has no further direct involvement with the project. At the same time that the IPT is formed, the details of the acquisition strategy and schedule for the design and development work is finalized.

Formation of IPT and Roles and Responsibilities

The IPT is composed of the project owner, impacted business stakeholders, and technical experts. The coordinator of the IPT is a PMSG staff member from the Division of Investment Support. Following the PRCP meeting, the IPT Coordinator will contact the project owner to prepare for the formation of the IPT, and to work on development of the project plan (including developing the project management plan and refining the project schedule).

The role of the IPT is to assist the project owner by providing guidance and support appropriate to the various phases of the systems development life-cycle: acquisition (e.g., finalizing the statement of work, serving as a technical reviewer), requirements analysis, design and engineering, development, testing, implementation, and operations and maintenance. Since different skills are required to a greater extent in some phases than others, the composition and level of participation by members of the IPT may vary as the project progresses through the stages of the systems development lifecycle. The objective is to have the right people involved in the project at the appropriate time. The IPT can provide both technical guidance, and support in ensuring that the project and the design contractor are being effectively managed.[4]

OIS has created the Integrated IT Investment Management Roadmap to assist project owners in understanding the phases and deliverables generally expected in a traditional systems development project. The Roadmap also reflects those specific processes and decision points that are unique to CMS's investment management process. The Project Coordinator and other members of the IPT can help the project owner apply appropriate project management techniques and guide the project owner through the requirements of the Roadmap.

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[4] NOTE: PMSG has developed a sample statement of work (SOW) that project owners can use as a guide for acquiring the services of a support contractor in the design and development phases. This SOW covers the SDLC phases from requirements through implementation.

Acquisition and Management of Support Contracts

There are various acquisition vehicles available to project owners to support the systems development effort:

- GSA schedule, government-wide acquisition contracts (GWACs),
- CMS blanket purchasing agreements (BPAs) such as the SDLC BPA and Systems Integration BPA, and
- Indefinite Delivery/Indefinite Quantity (IDIQ) contract for professional IT services including project management, system and software documentation, IT training, systems integration, and systems maintenance (available in Fall 2002).

The proposed acquisition strategy should have been included as part of the BCA developed for the investment decision by the FMIB. There are a number of tools that are strongly encouraged as components of the acquisition strategy. Generally, contracts awarded to support systems development efforts should be modular, performance-based contracts, and should require earned-value management reporting by the contractor. For contracts that involve software development, CMS is also using demonstrated assessments using the Software Engineering Institute's Capability Maturity Model (CMM), as an indicator of the capability of contractors to effectively support software development projects. These tools are components for promoting knowledgeable contractor selection, efficient contractor management, and performance monitoring.

> *Modular Contract* - To minimize the risks associated with contracting, CMS requires that the contract be segmented in distinct phases, with each phase having discrete deliverables ("chunks"), and with separate decisions being required to "turn on" the next phase of the contract. This modularity allows for CMS to minimize the contracting risk and to ensure value from completion of each contract phase, even if the decision is made not to proceed with funding successive contract phases.

> *Performance-based Contracts* - Performance-base contracts utilize clear performance incentives built into the contract. These incentives can take multiple forms, including: incentive payments for the successful accomplishment of work modules--as assessed against quality and schedule measures and awarding of successive phases of the contract based on successful performance in prior contract phases.

> *Earned-Value Management (EVM) Reporting*. - EVM is a management technique that relates resource planning, schedules, and technical work requirements. All work is planned, budgeted, and scheduled in time-phased increments constituting a performance measurement baseline. EVM helps CMS identify performance (cost and schedule) issues early in the process; and therefore, supports early intervention to manage risks or performance problems. OIS has developed an Earned Value Management Implementation Guide; PMSG staff can provide guidance in how EVM can be applied to a specific IT project.

Independent Verification and Validation (IV&V) - PMSG retains the services of an IV&V contractor to help oversee the process, progress, and products associated with IT projects. All Level D projects will be subject to IV & V review. In addition, other projects involving specific risks warranting IV&V involvement may be identified. Project owners that believe their projects pose unique challenges and risks may also request IV&V involvement. IV&V provide the project owner and management with an independent perspective on the project or the contractor's performance.

Technical Design Reviews

To ensure that the technical solution developed by the contractor is supportable from an architectural and technology perspective, the project is required to have the technical design reviewed and approved at two points in the life cycle:

- at the end of the Design/Engineering Phase, and
- prior to the Testing Phase.

The CIO has responsibility for ensuring compliance with the Agency's IT architecture and standards. The CIO has delegated responsibility for the review and approval of the technical design to the CIO's Technical Advisory Board (CTAB), which is composed of technical experts from across CMS. The CTAB has established an Architecture Compliance Checklist to assist project owners and their contractors in preparing for the technical design reviews. The Project Coordinator will facilitate scheduling these reviews with the CTAB.

Approval by the CTAB is required to move the project forward. The first review occurs at the end of the Design/Engineering Phase and looks at the initial technical design and certifies that it complies with CMS's target IT architecture and standards. Since technical designs may change as the development work progresses, a second technical design review occurs prior to the Testing Phase to ensure that the design is still in compliance with the IT architecture and standards. Once the project is given final certification, then the remaining lifecycle activities may continue. Should design changes occur during testing, the project is considered to be back in the Development Phase and the CTAB must re-certify the new design.

Data Systems: Special Clearances

CMS projects that involve the collection, maintenance, use or disclosure of information about beneficiaries, physicians, or providers require special clearances. These clearances are outlined below:

System of Records (SOR) - If the new system will cause CMS or its agents to collect, maintain, use, or disclose information about a U.S. citizen (beneficiaries, physicians, or individual health care providers), or to transmit or maintain electronically any identifiable health information, then a system of records must be prepared and published in the *Federal Register*.

Interagency Agreement (IA) - If the new system will require CMS to receive data/information from or disclose data/information to another Federal Agency, then an interagency agreement must be executed between CMS and the other Federal agency. The CIO must sign the IA for CMS.

Data Use Agreement (DUA) - If CMS data containing personally identifiable beneficiary information is to be released, a data use agreement must be executed between CMS and the recipient/user of the data. The DUA delineates the user's responsibilities in receiving and using the identifiable beneficiary data; the purpose for which the data is being released; the length of time the data is be used; the specific data being released; and to whom the data is being released.

Computer Matching Agreement (CMA) - If the system will be used as part of a computer matching program, then a computer matching agreement must be executed and approved by CMS, the HHS Data Integrity Board, and, if data from another Federal agency is involved in the computer matching, the appropriate officials from that agency. A computer matching program is any computerized comparison of data from two or more systems of records (or the comparison of data from a CMS system of records with non-Federal records) for the purpose of:

- establishing or verifying eligibility or compliance with law/regulations by applicants or beneficiaries, or
- recouping payments or overpayments.

System Security Plan

A system security plan must be developed for each new or modified system. The system security plan provides an overview of the security requirements of the system, documents controls in place to meet those requirements, and delineates responsibilities for all individuals who have access to the system. The system security plan must be certified by the system owner/manager and must be accredited by the CMS CIO prior to the system becoming operational.

Implementation Readiness Review

An Implementation Readiness Review (IRR) will be conducted after validation testing and prior to release of the new or changed software into production. The purpose of the IRR is to ensure that all prerequisites leading up to production implementation have been met. The signatures from the OIS managers, the system owner/manager and the business owners/partners on the IRR Data Sheet (a checklist of all prerequisites) are required to authorize the release into production environment.

Performance Monitoring

Monitoring of the investment continues throughout the requirements, design/engineering, development, testing, and implementation phases. The purpose of this monitoring is to ensure that potential problems that may result in additional costs, slippage in schedule, scope changes, or quality issues are identified and addressed as early as possible.

PMSG is responsible for conducting this performance monitoring and alerting the FMIB of issues relevant to the FMIB's annual investment funding decisions. Since projects are generally required to obtain funding on an annual basis, the FMIB must approve ongoing funding each year for Level C and D multi-year projects.

PMSG draws from a number of data sources to conduct this performance monitoring, including status reports from the IPT, earned value management reports, and IV&V reports. The performance monitoring information gathered throughout the year can assist the FMIB in their decisions concerning annual funding of projects. [5]

In addition, the Agency, as often as requested, reports on Level D projects to authorities outside of the Agency in the form of status reports and the annual Exhibit 300. At a minimum, for Level D projects, PMSG must prepare an annual variance analysis between the baseline performance plan established in the original Exhibit 300 and the present.

Ongoing Investments

Any time an organization implements new processes and requirements, there is always the dilemma of how these processes and requirements apply to efforts/projects that are already underway. The IT investment management process brings many sound processes and practices to improve the likelihood of project success and return on investment of critical IT resources. OIS' goal is to integrate these processes and practices into the management of all IT investment efforts, including ongoing projects, as quickly as possible. However, requiring compliance of existing IT investments with all aspects of the IT investment management process is not practical or efficient from a business perspective. Similarly, OIS does not possess adequate resources to support implementation of these processes and practices across all existing investments.

Certain requirements, however, are so critical that not requiring compliance by all investments poses too great a risk to the Agency and its critical resources. The most notable of such risks is the risk to the stability and security of CMS's infrastructure and data. Therefore, for existing IT investments, OIS will be determining those processes and practices that must be complied with,

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[5] NOTE: PMSG is developing an approach for providing the FMIB a summary assessment of the status of Level C and D investments based on the information they have received throughout the year. This indicator (a green light, yellow light, and red light) will be included in the information given to the FMIB on every project. This will provide them with the most current information about the "health" of the project before they commit funds for the coming fiscal year.

and those processes and practices that we would encourage compliance for improved effectiveness and likelihood of investment success.

One requirement that must be complied with is maintaining a current and comprehensive inventory of all IT investments for decision-making and budget reporting. This inventory is maintained in the IT Investment Tracking Database. All project owners for IT investments are required to complete IT Fact Sheets and enter this information into the IT Investment Tracking Database. As new IT investments are approved, the IT Investment Tracking Database information must be completed.

Project owners for existing IT investments (already in the IT Investment Tracking Database) must update their IT Fact Sheets <u>every</u> year that funding is needed. This requirement applies to all IT investments, irrespective of their classification level. Even if a project is approved in one fiscal year, the FMIB reassesses the Agency's priorities every year. During the course of a year any number of elements (scope, size, cost) of a project may change significantly. An annually updated IT Fact Sheet gives the FMIB the opportunity to make decisions based on the most current information.

After approval of the Operating Plan level of funding for the investment, the project owner must complete the Spending Plan section of the IT Fact Sheet in the IT Investment Tracking Database to document how he/she plans to spend the funding approved for the project. Every spending action (acquisition action, intra/inter-agency agreement, etc.) is matched against the Spending Plan before it is processed in PMSG.

Level A and B Investments

For these projects, the project owner must also provide annual performance measures that determine if the support contractor is operating at an acceptable level. Performance measures are based primarily on cost and schedule, i.e., evaluating if the product or service was worth what was paid for it and was it delivered on time. At the end of the year, project owners must fill out a Performance Assessment in the IT Investment Tracking Database, which asks a few basic questions about performance during the year.

It should be noted that any existing Level A or B IT project that requires a significant change or an enhancement that carries a high price tag or a significant risk will be treated as a new IT project, as outlined in a preceding section. Because the nature of the project is changing (an existing system will undergo a major revision or be converted to a new language), there is a new investment decision required and potentially new risks and issues that must be considered.

Level C and D Investments

These projects have greater reporting requirements because they involve greater costs and risks to the Agency. As with Level A and B projects, project owners for Level C and D projects must:

- update the IT Fact Sheet information in the IT Investment Tracking Database every year,

- complete the Spending Plan section once the Operating Plan funding level for the project has been approved,

- update the Project Plan, and

- complete the performance measures and Performance Assessment sections of the IT Investment Tracking Database.

In addition, for Level C and D projects, PMSG collects performance monitoring information (as discussed above) throughout the year to assess performance and to identify issues that should be considered by the FMIB as part of their annual Operating Plan funding decisions.

In-House Projects

In-house projects do not require review and approval by CMS's IT investment review board because they do not require direct funding. However, because these projects have impact on other IT initiatives and systems, project owners of in-house projects are subject to the same management review and control principles that govern IT investments outlined in this document, including impact assessments and performance measuring and reporting activities.

ASSISTANCE WITH THE PROCESS

There are a number of resources to assist project owners with any aspect of the process. The first resource are the individuals involved with the IT Investment Management Process itself – the staff of PMSG. All of the four Divisions within the Group are responsible for some portion of the process. The following is a list of areas related to the IT Investment Management Process and the system and software development activities and the PMSG staff that is responsible for supporting them. Staff is available to answer any questions at anytime.

Division of Architecture and Strategic Planning (DASP)

Susan McConnell, Director (786-0587); Larry Pratt, Deputy Director (786-7500)

- Strategic IT planning, including the Five-Year IRM Plan, IT Migration Plan, and IT Workforce/Training Plan
- Enterprise Architecture and governance structure
- Business process modeling service and serves as focal point for business process reengineering to ensure appropriate application of IT
- CIO policy and process promulgation, including the Integrated IT Investment Management Roadmap
- IT education services, including information conferences and on-line research services

Division of Investment Analysis and Budget (DIAB)

Tasha Richburg, Director (786-5003); Bill Deming, Deputy Director (786-5951)

- CMS IT budget development and support
- IT Fact Sheet and the IT Investment Tracking Database
- Business case analysis (BCA) support, including support for cost-estimation methods, cost-benefit analysis, and requirements engineering
- OMB Exhibit 300 submission
- Inter-Agency agreements
- DHHS license agreements

Division of Investment Support (DIS)

Ann Pollock, Director (786-6405); Bruce Tarantino, Deputy Director (786-5140)

- IT project planning, scheduling, and management, including project planning for software development support
- Support for integrated project teams (IPT)
- SOW template for system and software development projects

- Indefinite Delivery/Indefinite Quantity (IDIQ) contract for professional IT services including project management, system and software documentation, IT training, systems development and integration, and systems maintenance
- Requirements management, quality assurance, and configuration management

Division of Investment Tracking and Assessment (DITA)

Sam Guida, Director (786-7494); Joe Hladky, Deputy Director (786-1956)

- IT investment control and project performance using cost, schedule, and scope metrics
- Performance measures
- Independent verification and validation (IV&V) for individual IT projects to help project owners manage cost, schedule, and scope during systems development lifecycle activities
- Assistance to project owners and contractor in implementing earned value management
- Post-implementation assessment, including outcome metrics, for policy and process assessment, including lessons learned, to improve the IT Investment Management Process.

ATTACHMENT A

IT BUDGET
FORMULATION PROCESS

ATTACHMENT A

IT Budget Formulation Process

The Division of Investment Analysis and Budget (DIAB) within the CIO Planning, Management, and Support Group (PMSG) in OIS collects information about IT projects to assist the Financial Management Investment Board (FMIB) in formulating the Agency's IT budget. The IT budget is simply the sum of all of the approved IT projects for a given year. IT projects can be funded out of any formal budget (Contractor, Administrative, etc.) but are organized in one spreadsheet that represents all of the Agency's planned expenditures on IT-related activities. The spreadsheet contains a line item for every approved IT project in the IT Investment Tracking Database and the approved funding level for the fiscal year. This funding level is what project owners base their Spending Plan on.

Please note that the following describes what <u>usually</u> happens. There may be some years when activities happens in a different order or are combined or separated. This is especially true with the call letters, where one year they are combined into one document and the next year they come out at different times.

Step 1   Separate call letters are sent out to CMS senior staff, including the Regional Offices, to request information for the budget for FY+1 and FY+2.

▶   The **CIO budget call letter** is sent to each project owner of <u>existing</u> IT projects requesting an update of the budget information, as well as other required information, in the IT Investment Tracking Database. PSMG gathers this budget information for input into the Agency's President's budget submission for FY+2 and the Agency's Operating Plan for FY+1.

▶   The **Chief Financial Officer (CFO) budget call letter** requests input from CMS staff for all budget information for FY+2 to be included in the President's budget. The IT portion of that call addresses only new IT investments.
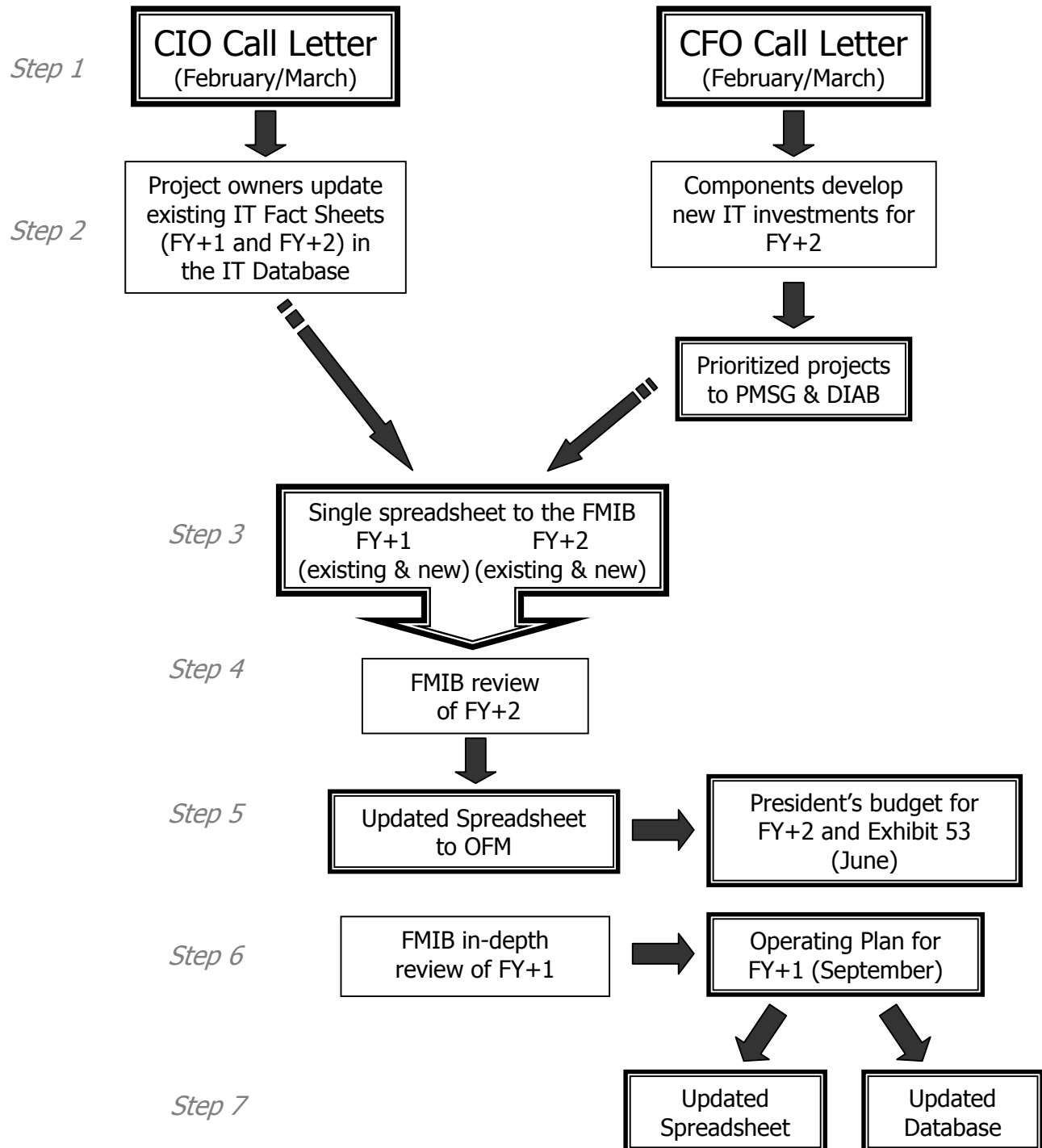
Step 2   PMSG analysts forward a copy of the call for "continued" investments to each of their project owners.

▶   In response to the **CIO call letter**, project owners review all information in IT Database for accuracy and ensure that the Project Budget Request section of IT Database is updated for FY+1 and FY+2

▶   In response to the **CFO call letter** for new IT projects, project owners prepare basic information about proposed projects. The senior management of each component reviews and prioritizes the projects they wish to sponsor for FY+1 and FY+2 and the funding level required. Each component (including OIS) forwards a response to PMSG with summary information on all new proposed

IT initiatives. The project owners are instructed to fill out a Candidate IT Fact Sheet in the IT Database for the new proposed projects.

Step 3   DIAB prepares a spreadsheet with all of the updated cost data for continuing projects from the IT Database and data from the new requests from the component submissions. The spreadsheet lists every project as an individual line item, the approved funding level for the current fiscal year, the proposed budget for FY+1, and the requested budget for FY+2. A summary of all the proposed project descriptions is included.

Step 4   The spreadsheet and summary document are provided to the FMIB, which consist of Office/Component Heads and representatives from the various budget components (e.g., Contractor, Administrative, MIP, PRO). They look at all projects that require funding in FY+2 and their tentative funding levels, and then determine which projects will be included in the President's budget for FY+2.

Step 5   A DIAB analyst assigns each of the new projects approved a permanent tracking number. Final spreadsheets, organizing the approved projects and data by specific Agency mission areas, are prepared and forwarded to OFM for formulation of the Agency's President's budget submission for FY+2 and Exhibit 53.

Step 6   The FMIB reconvenes to do an in-depth review of funding levels for projects for FY+1. Using the updated spreadsheet, they decide which projects will be funded, the level of funding each will receive, and which budget accounts the money will come from. The final decisions become the Operating Plan for the next fiscal year (FY+1).

Step 7   When the Agency Operating Plan is finalized, DIAB enters the approved budget amounts into the Current Budget section of each project in the IT Database. The project owners are requested to complete the Spending Plan section of the Database equaling the budget amount. This information is used by OIS for IT procurement review and approval and is provided to AGG for Acquisition Plan purposes.

IT BUDGET FORMULATION

Step 1	**CIO Call Letter** (February/March)	**CFO Call Letter** (February/March)

Step 2

Project owners update existing IT Fact Sheets (FY+1 and FY+2) in the IT Database

Components develop new IT investments for FY+2

Prioritized projects to PMSG & DIAB

Step 3

Single spreadsheet to the FMIB
FY+1   FY+2
(existing & new) (existing & new)

Step 4

FMIB review of FY+2

Step 5

Updated Spreadsheet to OFM

President's budget for FY+2 and Exhibit 53 (June)

Step 6

FMIB in-depth review of FY+1

Operating Plan for FY+1 (September)

Step 7

Updated Spreadsheet

Updated Database

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DOCUMENT CHANGE HISTORY

Revision Number	Date	Revision/Change Description	Page(s)/Section(s) Affected
1	7/19/02	• Update for PMSG org changes, • Update for Process changes, • Added requirement that in-house projects follow the Process, • Consolidated the three previous "assistance" sections into one, • Deleted Project Checklist and Acronym attachments.	All